REMARKS

Claims 1-33 are currently pending in the subject application, and are presently under consideration. Claims 1-33 are rejected. Favorable reconsideration of the application is requested in view of the comments herein.

I. Rejection of Claims 1-33 Under 35 U.S.C. §102

Claims 1-33 stand rejected under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 6,054,894 to Wright, et al. ("Wright"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Wright does not anticipate claim 1. Wright fails to disclose a power detector that provides an indication of power associated with a transmitter output signal, as recited in claim 1. In rejecting claim 1, the Office Action interprets that an adaptive control processing and compensation estimator (ACPCE) reads on the power detector recited in claim 1 (See Office Action Pages, 2 and 3). Applicant's representative respectfully disagrees. The ACPCE block 28 illustrated in FIG. 2 of Wright compares three signals ($\gamma s(t)$, $Ph_A(t)$ and $Ph_B(t)$) and determines a remaining level of imperfection in an analog up conversion process that has not been previously corrected (See Wright, Col. 8, Lines 59-62). In Wright, the ACPCE block 28 provides a compensation signal $X_+(t)$ to a digital compensation signal processing block (See Wright, FIG. 2). Significantly, the signals $Ph_A(t)$ and $Ph_B(t)$ correspond to phase-varying complex baseband signals that have been decomposed from the complex input baseband signal s(t) by a signal separator 11 (See Wright, Col. 7, Lines 8-15). The signals $Ph_A(t)$ and $Ph_B(t)$ - like the signal s(t) - are digital data signals that are intended to be amplified (See Wright, Col. 7, lines 1-3).

Nothing in Wright discloses (or even suggests) that the compensation signal $X_+(t)$ provided by the ACPCE block 28 is or includes an indication of power. Instead, Wright discloses only that $X_+(t)$ is a vector of the latest estimates of correction parameter values (See Wright, Col. 9, Lines 2-4). Therefore, in contrast to the "interpretation" in the Office Action, the ACPCE block 28 disclosed in Wright does not read on the power detector recited in claim 1, since the ACPCE block 28 does not provide an indication of power associated with a transmitter output signal. In the rejection of claim 1, the Office Action cites numerous sections of Wright

(See Office Action, Page 3, citing 7 different sections of Wright). However, none of the cited sections of Wright, nor Wright more generally, supports the interpretation presented in the Office Action that Wright teaches a power detector that provides an indication of power associated with a transmitter output signal. For instance, alternate arrangements for the ACPCE block 28 are illustrated in FIGS. 13, 26 and 28 of Wright. None of the corresponding descriptions for FIGS. 13, 26 and 28 of Wright describes anything that would indicate that the ACPCE block 28 provides an indication of power as recited in claim 1(See Wright, Col. 25, Lines 8-42, Col. 40, Lines 7-13 and Col. 43, Lines 13-47). Thus, Wright does not teach that an indication of power associated with a transmitter output signal is provided by a power detector, as recited in claim 1.

Since the cited sections of Wright and Wright more generally fails to explicitly disclose a power detector (or that the ACPCE functions to detect power), as recited in claim 1, Applicant submits that the interpretation in the Office Action appears to be based on mere speculation. That is, the position in the Office Action is unsupported by the explicit or inherent teachings of Wright. It is well settled that inherency may not be established by mere probabilities or possibilities, and mere fact that certain things may result from give set of circumstances is insufficient. See *In re Robertson*, 49 U.S.P.Q.2d 1949 (Fed. Cir. 1999).

Moreover, since Wright fails to disclose the power detector recited in claim 1, Wright cannot disclose a compensation system that employs an indication of power (provided by the power detector) to compensate for at least one transmitter impairment affecting the transmitting output signal. In contrast to claim 1, Wright discloses that the ACPCE block 28 compares three signals ($\gamma s(t)$, $Ph_A(t)$ and $Ph_B(t)$) and determines a remaining level of imperfection in an analog up conversion process that has not been previously corrected (See Wright, Col. 63-67). Since the compensation signal $X_+(t)$ that is provided by the ACPCE 28 does not correspond to an indication of power, there is no basis to conclude or interpret that compensation in Wright would be performed by employing an indication of power, as performed by the compensation system recited in claim 1.

For the reasons stated above, Wright does not anticipate claim 1. Accordingly, claim 1, as well as claims 2-13 depending therefrom, are patentable.

Additionally, Wright does not disclose that a power detector provides an indication of power as a relative power measurement associated with respective in-phase (I) and quadrature

(Q) signal components, as recited in claim 3. Instead, Wright discloses that a feedback loop 32 provides a downconverted, complex baseband signal γs(t) that is compared to ideal (and intended-to-be-amplified) baseband signals $Ph_A(t)$ and $Ph_B(t)$ by the ACPCE 28 to determine imperfections in an analog up-conversion process (See Wright, Col. 8, lines 57-67). Since Wright fails to disclose that relative I and Q power measurements are employed to compensate for at least one transmitter impairment, as recited in claim 3 (which depends from claims 2 and 1), claim 3 is also patentable.

Furthermore, Wright does not disclose a comparator that compares a power characteristic associated with each of the (plurality of) tones in a signal spectrum relative to a power characteristic of the reference tone to provide an indication of relative power for each respective tone, as recited in claim 7. In contrast to claim 7, Wright discloses that the ACPCE 28 includes a comparator 145 that compares the output of a LINC amplifier 20, namely $ks_{oberserved}(t)$, with predicted waveform $ks_{predicited}(t)$ from a model LINC amplifier 143 to provide the difference signal $V_{error}(t)$, which is used to adjust the model LINC amplifier (See Wright, Col. 25, Lines 58-63 and FIG. 14). Wright does not disclose that $ks_{oberserved}(t)$ or $ks_{predicited}(t)$ are power characteristics. Instead, Wright specifically discloses that $ks_{oberserved}(t)$ and $ks_{predicited}(t)$ are observed and predicted waveforms, respectively. Compensation parameters are computed according to the estimator 147 that adjusts the model based on the $V_{error}(t)$, from which compensation parameters are computed (See Wright, Col. 25, lines 60-67). Thus, Wright does not disclose the comparator recited in claim 7 in which an indication of relative power is provided for each respective tone.

Moreover, Wright does not disclose a weighting function that employs an indication of power for each respective tone to adjust the level of each tone relative to a reference tone, as recited in claim 7. In rejecting claim 7, the Office Action contends that Col. 32, line 53 to Col. 33, line 27 of Wright discloses this element of claim 7. Applicant's representative respectfully disagrees. The cited section of Wright discloses performing an averaging of parameter estimates of current calculated values with progressively smaller contributions from previous parameter calculations, such that newly calculated parameters do not change significantly or suddenly on each training calculation (See Wright, Col. 33, Lines 6-17). Since nothing in the cited section of

Wright or elsewhere in Wright corresponds to a weighting function, as recited in claim 7, Wright does not anticipate claim 7.

Further still, Wright does not disclose a detector bias component, as recited in claim 9. As discussed with respect to claim 1, Wright fails to disclose the use of a power detector (claim 1), such that there would be no motivation or rationale to determine a DC bias associated with a power detector. Moreover, Wright discloses that an ACPCE 28 ensures that operation of a power amplifier is free from spurious emissions when required to switch on and off and also when ramping on and off transmissions (See Wright, Col. 15, Lines 27-30). However, claim 9 recites that the detector bias component is configured to determine a DC bias associated with operation of a power detector. In sharp contrast to claim 9, the ACPCE 28 disclosed in Wright does not determine a DC bias associated with operation of a power detector. Instead, the ACPCE 28 disclosed in Wright compensates for spurious emissions related to transmissions by powering up the amplifiers gradually while sending antiphase signals through them (See Wright, Col. 15, Lines 31-34). There is nothing in Wright that discloses that such control would involve the use of a detector bias component, as recited in claim 9. Since Wright does not disclose the detector bias component recited in claim 9, there is likewise no teaching that the ACPCE 28 would employ the determined DC bias to mitigate effects of DC bias in the indication of power (provided by the power detector of claim 1), consistent with what is recited in claim 9. Therefore, Wright does not anticipate claim 9.

Yet further still, in contrast to claim 12, which depends from claims 11 and 1, Wright does not disclose the mismatch correction system recited in claim 12. As discussed above with respect to claims 3 and 7, Wright discloses that ACPCE 28 includes a comparator 145 that compares the output of a LINC amplifier 20, namely $ks_{oberserved}(t)$ 18 with a predicted waveform $ks_{predicited}(t)$ 144 from model LINC amplifier 143 to provide the difference signal $V_{error}(t)$ 146 (See Wright, Col. 25, Lines 58-63 and FIG. 14). By contrast, the comparator of claim 12 compares an indication of power associated with an I-signal component and an indication of power associated with a Q-signal component to provide an indication of relative power characteristics corresponding to a mismatch associated with a signal path for the I-signal component and a signal path for the Q-signal component. The comparator 145 disclosed in Wright thus does not correspond to the comparator recited in claim 12, as appears is being

suggested in the Office Action since the comparator 145 disclosed in Wright does not compare indications of power as to provide an indication of relative power characteristics. Consequently, Wright fails to disclose a control that can adjust one or both of the I and Q-signal components based on the indication of relative power characteristics, as recited in claim 12. Thus, Wright fails to anticipate claim 12.

Moreover, since claim 12 depends from claims 11 and 1, both of the indications of power associated with the respective I and Q-signal components that are compared in claim 11 are associated with a transmitter output signal. In contrast, in Wright, one of the signals that is compared by the comparator 145, namely $ks_{predicited}(t)$ 144 is not even associated with the output signal ks(t) 18. Instead, $ks_{predicited}(t)$ is the output of a numerical model of a real analog LINC amplifier 20 (See Wright, Col. 25, Lines 52-54). For these reasons, as well as those stated in support of claims 3 and 7, Wright does not anticipate claim 12.

Claim 14 is not anticipated by Wright. Wright does not disclose a correction system and a power detector, as recited in claim 14. For the reasons discussed above with respect to claim 1, Wright does not disclose a power detector that detects power associated with a transmit signal and provides an indication of power, as recited in claim 14. Instead, Wright discloses an ACPCE block 28 that provides a compensation signal $X_+(t)$ (See Wright, FIG. 2). The compensation signal $X_+(t)$ is not an indication of power, and thus, Wright does not disclose the power detector recited in claim 14. Moreover, since Wright fails to disclose the power detector recited in claim 14, Wright cannot disclose a correction system associated with a baseband system for adjusting at least one of an I and Q-signal components based on the indication of power of the transmit signal (provided by the power detector), as recited in claim 14. For these reasons, Wright does not disclose each and every element of claim 14, and thus does not anticipate claim 14. Accordingly, claim 14, as well as claims 15-20 depending therefrom, are patentable.

Regarding claim 18, Wright does not disclose a correction system comprising a mismatch correction system operative to ascertain, based on an indication of power, an indication of mismatch associated with a signal path for an I-signal component and a signal path for a Q-signal component, as recited in claim 18. As discussed above with respect to claims 7 and 12, the comparator 145 disclosed in Wright does not compare indications of power. That is, Wright fails to disclose any structure that is capable of ascertaining of an indication of a mismatch between I

and Q-signal components based on the indication of power (from claim 14). Accordingly, Wright does not anticipate claim 18.

Claim 21, which is written in means plus function format, is not anticipated by Wright. For reasons similar to those discussed above with respect to claim 1, Wright fails to disclose determining an indication of power associated with a transmit output signal, as recited in claim 21. Consequently, Wright also fails to disclose any means for compensating for distortion based on the indication of power, as recited in claim 21. Since Wright does not disclose each and every element of claim 21, Wright does not anticipate claim 21. Thus, claim 21, as well as claims 22-27 depending therefrom, are patentable.

Additionally, regarding claim 24, Wright does not disclose means for mitigating spikes, as recited in claim 24. In Wright, the ACPCE 28 ensures that operation of a power amplifier is free from spurious emissions when required to switch on and off and also when ramping on and off transmissions (See Wright, Col. 15, Lines 27-30). However, claim 24 recites that means for mitigating spikes does its function, applying a DC signal to adjust one or both I and Q-signal components, based on the indication of power. In contrast to claim 24, the operation of ACPCE 28 disclosed in Wright is not based on an indication of power, since as discussed repeatedly above, Wright fails to disclose that the ACPCE detects power associated with the transmit signal and provides the an indication of power.

Moreover, in the Office Action, it is argued that Wright discloses minimizing distortion, and thus reads on minimizing spikes, as recited in claim 24 (See Office Action, Pages 2-3). Even assuming *arguendo* that spikes are similar to distortion, Wright still fails to disclose mitigating spikes (e.g., distortion) in a carrier signal of a transmit signal by applying a DC signal to, <u>based on an indication of power</u>, adjust at least one of an I-signal component and a Q-signal component, as recited in claim 24. Thus, Wright does not anticipate claim 24.

Wright does not anticipate claim 28 for substantially the same reasons discussed above with respect to claims 1 and 24; namely, Wright fails to disclose detecting an indication of power associated with a transmit signal. Additionally, since Wright does not disclose detecting an indication of power, as recited in claim 28, Wright cannot disclose selectively adjusting at least one of an I-signal component and a Q-signal component based on the indication of power to compensate for impairments associated with a communications apparatus that affect the transmit

signal, as recited in claim 28. Since, for these reasons and those discussed above with respect to claim 1, Wright does not disclose each and every element of claim 28, Wright does not anticipate claim 28. Accordingly, claim 28, as well as claims 29-33 depending therefrom, are patentable.

Additionally, regarding claim 33, Wright does not disclose determining a weight factor for each of (a plurality of) tones based on an indication of power associated with each respective one of the tones relative to an indication of power associated with a reference one of the tones. As discussed above, Wright fails to disclose an indication of power. Accordingly, Wright cannot disclose determining a weight factor, as recited in claim 33.

For the reasons described above, claims 1-33 should be patentable over the cited art. Accordingly, withdrawal of this rejection is respectfully requested.

II. CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be passed to issue.

Should the Examiner have any questions concerning this paper, the Examiner is invited and encouraged to contact Applicant's undersigned attorney at (216) 621-2234, Ext. 106.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0668 of Texas Instruments Inc.

Respectfully submitted,

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